

Simple Motor Drivers

Name : _____

Note: Each circuit must be demonstrated to the instructor.

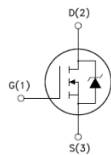
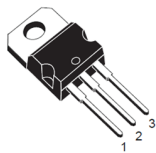
Detailed explanation of these circuits can be found at <http://www.dr Schlaak.com/-drive-a-simple-dc-motor.html>. **Please read it.**

Objectives:

- To examine, construct, and test various DC motor driver circuits.

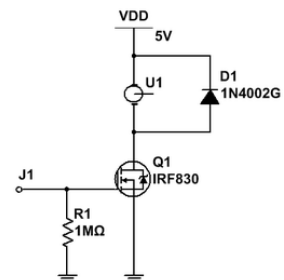
Procedure:

- Construct the **single N-channel MOSFET driver** circuit shown at right.



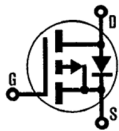
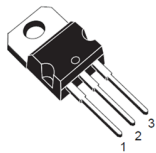
The IRF830 N-channel MOSFET has a maximum voltage rating of 500V, a maximum continuous current rating of 4.5A and a maximum pulsed current rating of 18A.

Drain to motor; Source to GND; Gate to control.



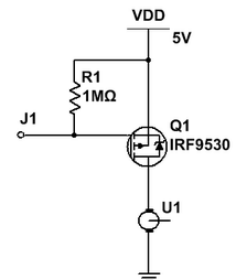
- Construct the **single P-channel MOSFET driver** circuit shown at right.

Notes:



The IRF9530 P-channel MOSFET has a maximum voltage rating of 100V, a maximum continuous current rating of 7.5A and a maximum pulsed current rating of 48A.

Source to +V; Drain to motor; gate to control.

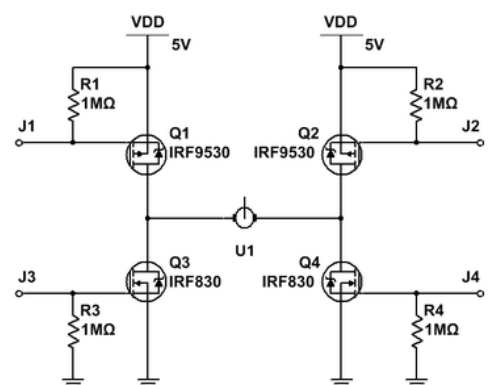


- Construct the **4-input H-Bridge MOSFET driver** circuit shown at right.

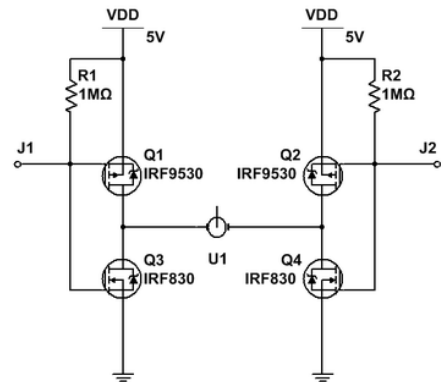
J1 controls Q1; J2 controls

If J1 and J3 are on at the same time, components will be destroyed; if J2 and J4 are on at the same time, components will be destroyed.

The P-channel Sources connect to +V; the N-channel Sources connect to GND. The left column transistors have their Drains connected to the same motor lead; the right column transistors have their Drains connected to the other motor lead.

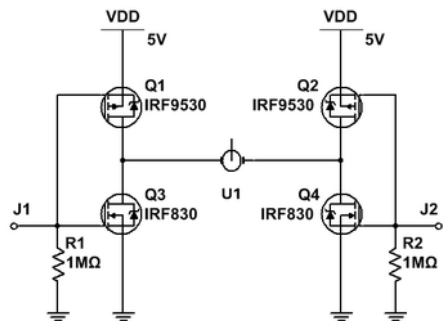


4. Construct the **2-input H-Bridge MOSFET driver** circuit shown at right.



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5. Construct the **2-input H-Bridge MOSFET driver** circuit shown at right.



6. Construct the **2-input H-Bridge MOSFET driver** circuit shown at right.

